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10/507,066

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EXAMINER

LEE, BENNY T

ART UNIT

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2817

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                 |  |
|------------------------------|--------------------------------------|---------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/507,066 | <b>Applicant(s)</b><br>YE, SHEN |  |
|                              | <b>Examiner</b><br>Benny Lee         | <b>Art Unit</b><br>2817         |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4,5,16-20; 12; 13,14 is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,10; 3,11 is/are rejected.
- 7) ☒ Claim(s) 9 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6-8; 3, 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by either Tsukamoto et al (of record).

Tsukamoto et al (e.g. Figs. 3A-3C) discloses a filter apparatus including a plurality of resonators comprising: a first resonator (e.g. 2a); a second resonator (e.g. 2b) disposed adjacent to and electrically coupled to the first resonator, where the first and second resonators are disposed in a common dielectric material or substrate (1) and have ends thereof which are not physically connected to each other (i.e. the ends of the first and second resonators terminate in open circuit surfaces of the dielectric material). Note that for the first resonator (2a), a first one of the ends of the resonator is of a greater diameter (i.e. first end portion) than the remainder of the resonator. Therefore, the first end portion of the first resonator (2a) is spaced by a coupling distance (i.e. characterized as a “primary coupling”, such as a capacitive coupling) from a first end of the second resonator (2b). Moreover, note that the first resonator and second resonator have opposite or “second” ends of the resonators that are spaced apart and coupled to each other (i.e. characterized as a “secondary coupling”, such as a capacitive coupling), where the second coupling is such that it is different from or not the same as the first coupling (i.e. by virtue of the first resonator (2a) being linear at the second end while the second resonator (2b) has a greater diameter at the second end, the distance of the respective couplings would be different). It should

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be noted that from the orientation of the closer coupled first ends, this determines the degree of the primary coupling independent of the secondary coupling.

With respect to claim 3, note that by virtue of the closer coupling of the first ends of the first and second resonators (2a, 2b), such a primary coupling provides a larger coupling interface relative to the lesser coupling interface at the second ends of the first and second resonators.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukamoto et al in view of the Setsune et al patent abstract (both of record).

Note that Tsukamoto et al further discloses with respect to Fig. 10, a planar conductive layer filter embodiment of the invention. Moreover, it is disclosed that the planar filter of the Fig. 10 embodiment may take the form of any of the previously disclosed filters shown in Figs 2-9, as described at column 7, lines 41-44 (i.e. including the Figs. 3A-3C embodiment). Therefore, Tsukamoto et al (Fig. 10) discloses the claimed invention except for the resonators being a HTS material disposed on a substrate of a specific dielectric material.

As described previously, the Setsune et al abstract discloses planar resonators (e.g. see Fig. 3) made of a HTS material layer (3) of e.g. Bi-Sr-Ca-Cu-O disposed on an MgO substrate (1).

Accordingly, it would have been obvious in view of the references, taken as a whole, to have realized the planar resonators in Tsukamoto et al (i.e. the planar filter embodiment in Fig.

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10 in conjunction with the specific resonator embodiment of Figs. 3A-3C) to have included a HTS material disposed on an MgO substrate, such as taught by Setsune et al. Such a modification would have been considered obvious since it would have imparted the advantageous benefit of low loss signal conductivity, taught by the HTS configuration in Setsune et al, to the planar resonator filters of Tsukamoto et al, thereby suggesting the obviousness of such a modification.

Applicant's arguments filed 13 April 2009 have been fully considered but they are not persuasive.

Applicant has asserted that claims 1, 2 & 11 substantially recite that the first and second ends of the first resonator lie on the same side of the first resonator. Applicant further asserts that Tsukamoto et al does not disclose this feature. In particular, applicant asserts that the "ends" in Tsukamoto et al terminate in open circuit surfaces and thus would be construed as being on opposing faces of the dielectric material and therefore cannot lie of same side of the resonator. Regarding the rejection of claims 2 & 10, applicant contends that Tsukamoto et al does not disclose what is recited in those claims and further asserts that Setsune et al fails to remedy the deficiencies in Tsukamoto et al. Moreover, applicant asserts that it is not proper to combine the references, as suggested by the examiner, since the references significantly differ from one another as to offer no teaching and/or suggestion for such a combination. Furthermore, applicant assert that even if the combination were to be made, it would not result in the first and second ends of the first resonator would not be on the same side of the resonator.

Contrary to applicant's assertion, it should be noted that Tsukamoto et al does indeed lie on the same side of the first resonator. In particular, it should be noted that the relevant coupling

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between resonators is not necessarily provided by that portion at the opposed end faces, but the conductive portion located adjacent the end faces (e.g. the vertically oriented portion labeled 5a & 5b as depicted in FIG. 3B). Accordingly, the conductive portions (5a, 5b) have a side surface thereof, which face each other. Likewise, the opposite end portion of the resonators (2a, 2b) has the side surface thereof, which face each other. Therefore, the vertically oriented side surfaces at the end portions of one of the resonators do indeed “lie” on the “same side” of the resonator (i.e. lies on the side of the one resonator that faces the other resonator) to provide the necessary and relevant coupling between resonators.

Regarding the obviousness rejection involving the Setsune et al reference, it should be noted that since the Tsukamoto et al reference does indeed already teach and/or suggest that the ends of the first resonator lie on the same side, then it stands to reason that Setsune et al is not required to make up for any perceived deficiencies in the Tsukamoto et al reference.

Furthermore, it should be noted that Setsune et al is mainly relied on for providing the obvious teaching and/or suggestion of forming the specific resonators in Tsukamoto et al as a high temperature superconductive (i.e. HTS) material, such as to provide the benefit of low loss signal conductivity, thereby suggesting the obviousness of the combination. Accordingly, the resultant combination of Tsukamoto et al & Setsune et al would indeed have met the limitations of the claimed invention, as set forth in the above rejections.

Claims 9, 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

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Claims 4, 5, 16-20; 12; 13, 14 are allowable over the prior art of record since none of the prior art references fairly teach or suggest first and second resonators being coupled by a coupling strip.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.

**/BENNY LEE/  
PRIMARY EXAMINER  
ART UNIT 2817**

B. Lee